

Work Order ID 136098

Friday, August 28, 2015 1:45:38 PM

646.9711
B 136098

136098

Page 1

Item ID: 646.9711

Revision ID:

Item Name: Blade

Start Date: 8/28/2015 Start Qty: 40.00

Required Date: 8/28/2015 Req'd Qty: 40.00

Reference:

REV. C

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Customer:

Approvals:

Process Plan: SH/LL

Date: 20150828

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
646.9700	C (ECN)								

100

100

Bandsaw

Jeaspa Bandsaw

BAND SAW

Memo

Cut Blank at 4.625"

0.00

0.03

DAS

44

9-89

16/01/21

110

110

HAAS1

HAAS CNC vertical machine #1

HAAS CNC VERTICAL MACHINING #1

Memo

1-Machine per folio FB135

DWG REV: C

FOLIO REV: C

0.01

0.11

DAS

44

9-89

16/01/22

2- deburr and break all sharp edges except otherwise noted

KNIFE EDGE MUST BE SHARPENED USING STONE, REMOVE ALL
BURRS ON CUTTING EDGE

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐								
		OTHER : _____							

Work Order ID 136098

Friday, August 28, 2015 1:45:38 PM

136098

Page 2

Item ID: 646.9711 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Blade
 Start Date: 8/28/2015 Start Qty: 40.00 ***40*** Cust Item ID:
 Required Date: 8/28/2015 Req'd Qty: 40.00 ***40*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00							
120									
QC	Memo	0.01				20	Ø		DAS 44 9-89 16/01/22
Quality Control									
130	QC8- Inspect parts - second check	0.00							
130									
QC	Memo	0.01				20	Ø		DAS 08 9-89
Quality Control									
140	Outsource process - Heat Treat	0.00							
140									
Outsource1	Memo	159.99				20			DAS 13 9-89
Outsource process - Heat Treat	HEAT TREAT AS PER DWG, SEE NOTE #3								
	ISSUE P/O: 31271								

FEB 05 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Work Order ID 136098

Friday, August 28, 2015 1:45:38 PM

136098

Page 3

Item ID: 646.9711

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Blade

Start Date: 8/28/2015 Start Qty: 40.00

40

Cust Item ID:

Required Date: 8/28/2015 Req'd Qty: 40.00

40

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

150

Receive & Inspect for Damage & Mat'l Certs

0.00

150

Packaging

Memo

0.01

Packaging

201 Sp/6-02-16

155

QC5- Inspect part completeness to step on W/O

0.00

155

QC

Memo

0.01

Quality Control

(20)

DAS
38
9-89

FEB 16 2016

160

Spray Painting per QSI005 4.2

0.00

160

SprayPaint

Memo

0.01

Spray Painting

PRIME AS PER DWG, SEE NOTE #4

PRIMER BATCH: 133399

20

DAS
41
9-89

16-2-18

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval																		
Description Work Order Deviation				Disposition			Completed By																		
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : ☐																			

Work Order ID 136098

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136098

Page 4

Item ID: 646.9711 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Blade
 Start Date: 8/28/2015 Start Qty: 40.00 ***40*** Cust Item ID:
 Required Date: 8/28/2015 Req'd Qty: 40.00 ***40*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	QC14- Inspect Spray Paint	0.00							
170						(20)			DAS 38 9-89
QC	Memo	0.01							FEB 23 2016
Quality Control									
180	Identify as per dwg & Stock Location <u>CCk 1081A</u>	0.00							
180						20			DAS 6 9-89
Packaging	Memo	0.01							FEB 23 2016
Packaging									
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.07							16/2/24 JA
Quality Control									

MCS FEB 23 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition			Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : ☐			

Picklist Print

Friday, August 28, 2015 1:45:43 PM

Page 1

Work Order ID: 136098

136098

Parent Item: 646.9711

646 9711

Parent Item Name: Blade

Start Date: 8/28/2015

Required Date: 8/28/2015

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP REV:A NEW ISSUE 12/09/24 JFS VERIFY BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased		No		100	f	142.4520	0.386	16.25263			

MSTFFI -A2-B0 500X1 250

AISI A2 TOOL STEEL BAR, 0.500 X 1.250

DAS
44
9-89

16/01/21

Location

Loc Qty

Loc Code

MAT010

142.452

M126438

5.452

M127494

9

~~M131783~~

128

8.125'

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

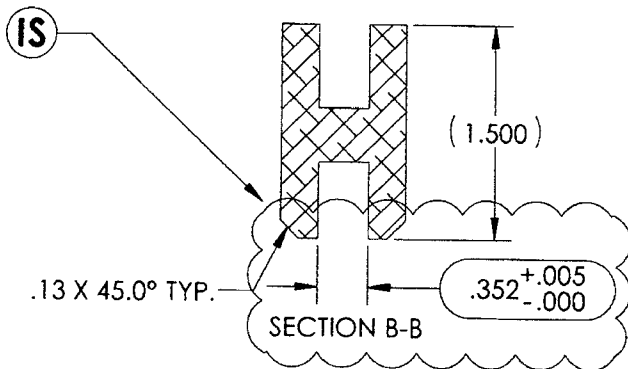
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

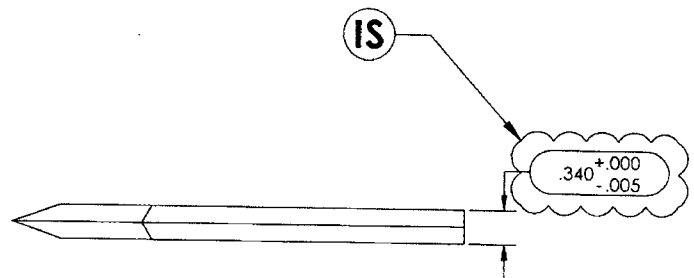
136098 34 20150828

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 04559		SHEET 1 OF 1	
	DWG NO. 646.9700	REV: C	PREPARED BY D. MEJIA	DATE: 06/11/2014
	DWG TITLE: CUTTER SUB ASSY			EFFECT ON DWG ☐ INC. ☒ UNINC.
	APPROVED BY: ENGR [Signature]	MFG [Signature]	QC [Signature]	EFF. NEXT ORDER
TRANSACTION CODES (TC): A-ADD R-REVISE		REASON: ADDED DIMENSION AND TOLERANCE		ECR: D-14-05
C-CREATE D-DELETE				

SHEET 2, ZONE D7 IS:



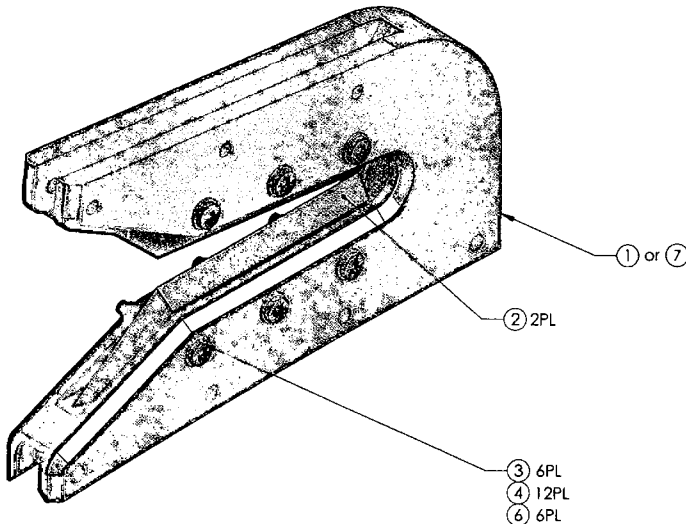
SHEET 5, ZONE B5 IS:



DOCUMENTS EFFECTED:	☐ MDL	☐ INSTALL INSTRUCTIONS	☐ ICA	☐ FMS	☐ BOM
	CHANGE CATEGORY ☐ MAJOR ☒ MINOR		DER REVIEW REQUIRED ☐ YES ☒ NO		

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.

REV	DESCRIPTION	DATE	APPROVED
1	LAST PRODUCTION RUNSOW 852		MC
2	REPAIR RELEASE	02/04/97	P. BRIND
3	INCORPORATED ECN 2377 J TYPE I CLASS N: 1-2 MIL MAX	02/04/97	P. BRIND
4	INCORPORATED ECN 2377 J TYPE I CLASS N: 1-2 MIL MAX	02/04/97	P. BRIND
5	INCORPORATED ECN 2377 J TYPE I CLASS N: 1-2 MIL MAX	02/04/97	P. BRIND
6	INCORPORATED ECN 2377 J TYPE I CLASS N: 1-2 MIL MAX	02/04/97	P. BRIND
7	INCORPORATED ECN 2377 J TYPE I CLASS N: 1-2 MIL MAX	02/04/97	P. BRIND
8	INCORPORATED ECN 2377 J TYPE I CLASS N: 1-2 MIL MAX	02/04/97	P. BRIND



646.9701
or
646.9702

NOTES:

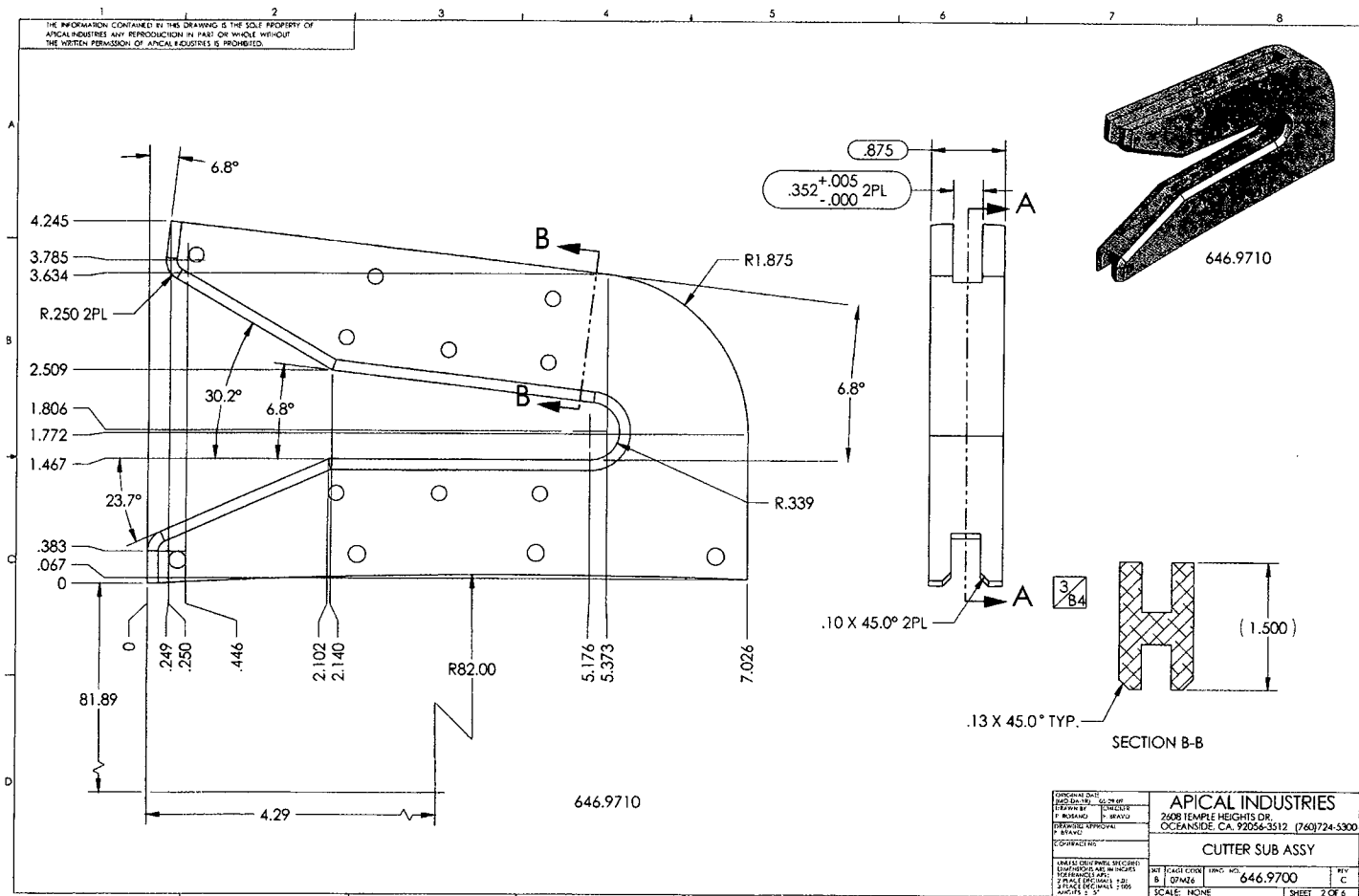
- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; PRETREAT PRC-DESOTO PR-148 ADHESION PROMOTER; PRIME IAW MIL-P-23377 J TYPE I CLASS N: 1-2 MIL MAX
- 3 MATERIAL: AISI A2 TOOL STEEL; CONDITION: ANNEALED; POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377 J TYPE I CLASS N: 1-2 MIL MAX
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

UNINCORPORATED ECN(s)

04559

QTY	REV	REV #	PART #	DESCRIPTION	MATL	SPEC.
1		7	646.9712	BODY (U CHANNEL)		
6	6	6	601.1541	LOCKNUT	MS21042L08	
A/R	A/R	5	601.2764	RTV, LOCITE 598		
12	12	4	601.2764	WASHER	HA31 LPH 1832P	
6	6	3	601.2765	SCREW	MS27039-0819	
2	2	2	646.9711	BLADE		
		1	646.9710	BODY		
			646.9702	CUTTER SUB ASSY		
			646.9701	CUTTER SUB ASSY		
PARTS LIST						
NEXT ASSY (S)				APICAL INDUSTRIES		
646.9600				2508 TEMPLE HEIGHTS DR.		
				OCEANSIDE, CA 92056-3512 (760)724-5300		
				CUTTER SUB ASSY		
				REV	CLASH FIT	REV: 102
				8	07M26	646.9700
				SCALE	NONE	SHEET 1 OF 8

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APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
CUTTER SUB ASSY	
DESIGNED BY: [blank] DRAWN BY: [blank] CHECKED BY: [blank] APPROVED BY: [blank] DATE: [blank]	PART NO.: 646.9700 SCALE: NONE SHEET: 2 OF 6

SECTION A-A

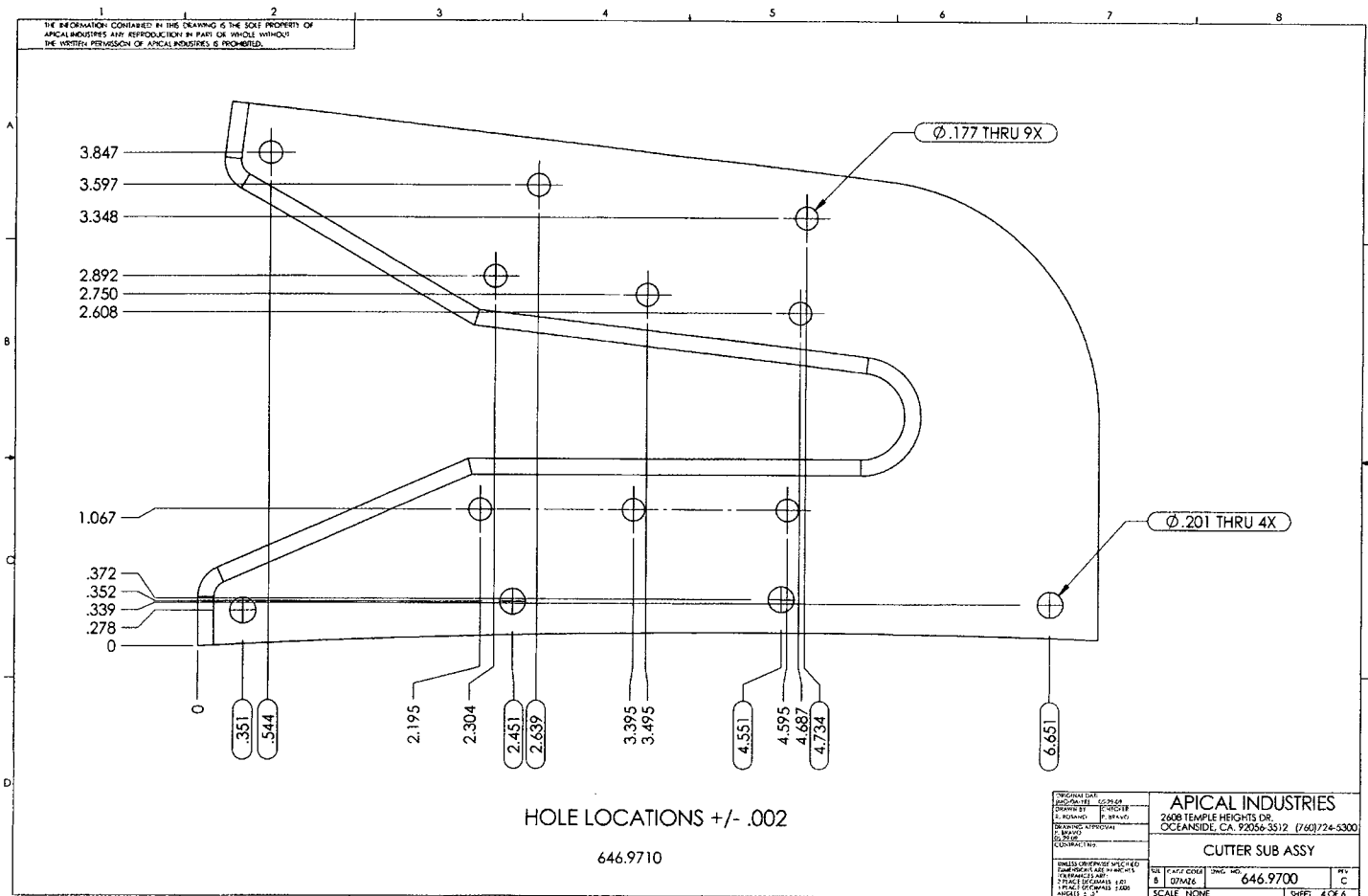
646.9710

APICAL INDUSTRIES, INC. 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760) 724-5300	
CUTTER SUB ASSY	
SCALE: NONE	SHEET 3 OF 4

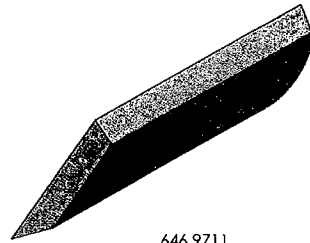
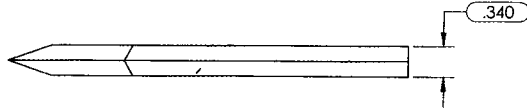
646.9710

GUNWALL (44) (10' DIA) (10' DIA) DRAINAGE (10' DIA) (10' DIA) DRAINAGE (10' DIA) (10' DIA) CONTRACTING	APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES (1/4" = 1'-0") 2 PLATE DIMENSIONS 1/4" 1/4" PLATE DIMENSIONS 1/4" ANGLES 1/4"	CUTTER SUB ASSY SUT 1/4" DIA 1/4" DIA 1/4" DIA SCALE 1/4" = 1'-0" 646.9700 SHEET 3 OF 6

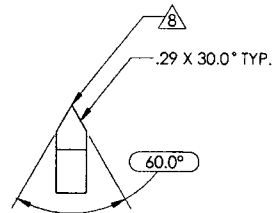
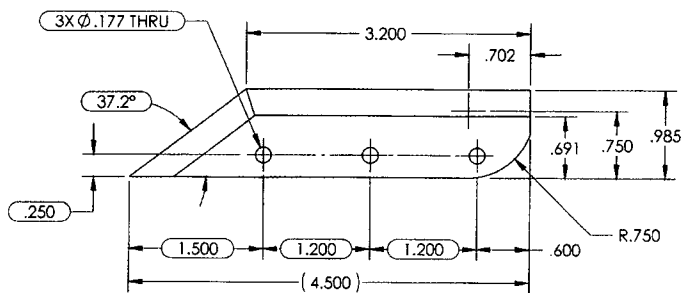
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THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES AND REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES IS PROHIBITED.



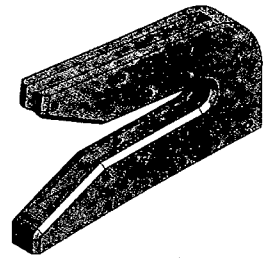
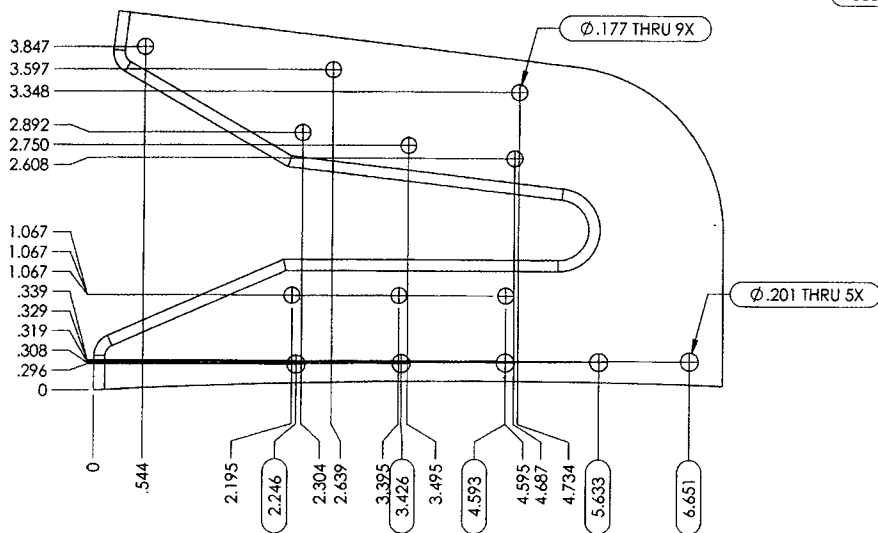
646.9711



646.9711

APICAL INDUSTRIES	
2608 TEMPLE HEIGHTS DR.	
OCEANSIDE, CA 92056-3512 (760) 724-5300	
CUTTER SUB ASSY	
DATE: 01/10/00	REV: C
BY: DPA/00	646.9700
SCALE: NONE	SHEET 5 OF 6

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646.9712 $\triangle$

646.9712

DESIGN DATE: 05-29-00 DRAWN BY: J. K. K. K. CHECKED BY: J. K. K. K. DRAWING APPROVAL: J. K. K. K. PART NUMBER: 646.9712		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760) 724-5300	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DECIMALS (FRACTIONS) 3 PLACES (FRACTIONS) 1/16 DECIMALS (FRACTIONS) 1/32		CUTTER SUB ASSY 646.9700 SCALE: NONE	
SHEET 6 OF 6		SHEET 6 OF 6	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO31271**

Purchase Order Date 2/5/2016

PO Print Date 2/5/2016

Page Number 1 of 2

Order From :

VC-MET004

Ship To : DART AEROSPACE LTD

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA



Contact Name

Vendor Phone 450 473 1884

Buyer

Chantal Lavoie

Customer POID

Customer Tax # 10127-2607

Ship To Contact

Terms Net 30

Ship To Phone

Currency CAD

Ship Via:

FedEx Economy collect

FOB

FCA - (Free Carrier)

Ship Acct:

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
----------	--	------------------------	--------------------------------------	----	--------------------------------	---------------	----------------

1 136098

646.9711 BLADE

2/19/2016

Yes

2/19/2016

20.00

\$0.00

\$0.00

FINISH: HEAT TREAT TO 58-62 RC
ROCKWELL HARDNESS

PART ARE MADE FROM AISI A2 TOOL STEEL

PLEASE NOTE: DETAIL C OF C REQUIRED

Sp/16-02-16

Line Total: \$0.00

2 141110

D4202-1 SPACER

2/19/2016

Yes

2/19/2016

205.00

\$0.00

\$0.00

HEAT TREAT TO T4/T42 CONDITION
MIN. UTS=30 KSI (60 HREW MIN)
NOTE: DETAIL C OF C REQUIRED

PART ARE MADE FROM 6061-T6 MATERIAL

Line Total: \$0.00

Note:

2/5/2016

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
308420	1	108667

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer

215

DART AEROSPACE

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

LIVRÉ À / Shipped To

DART AEROSPACE

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
31271		A2	2016/2/8	fed

QUANTITÉ Quantity	NO. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
----------------------	-------------------------	--------------------------------	---	-----------------

20 646.9711 BLADE

(20) 646.9711 BLADE

1 BOITE DE CARTON

5,94

Sp16-02-16

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
BOITE DE CARTON	1	

CERTIFICAT

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 20

POIDS EXPÉDIÉ / Weight Shipped : 5,94

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

CERTIFICAT

QUANTITÉ EXPÉDIÉE / Quantity Shipped: 20

POIDS EXPÉDIÉ / Weight Shipped : 5,94

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2016/02/10

METCOR INC.

550 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Rapport d'Inspection

Inspection Report :

BON DE TRAVAIL order	CHARGEMENT load
308420	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

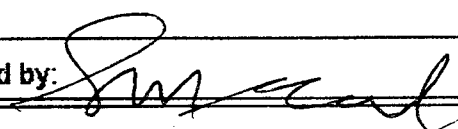
COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
31271		A2		
SPECIFICATIONS DU PROCÉDÉ processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement	SPECIFICATIONS / specified		TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC		5	60 - 62 HRC
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
20	5,94	846.9711 BLADE (20) 846.9711 BLADE 1 BOITE DE CARTON		

8416-02-16

15 Feb

COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2016-02-10

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
308420	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
31271		A2		
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results				
HARDNESS		58 - 62 HRC	5	60 - 62 HRC
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description		
20	5.94	646.9711 BLADE (20) 646.9711 BLADE 1 BOITE DE CARTON		

COMMENTAIRES / comments

VAC HARDEN 1800F, 1:30 HR
DOUBLE TEMPER 400F, 2 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

APPROUVÉ par / Approved by:

Isabel Otero
QA Technician



DATE: 2016-02-10